

## Abstract

A method and process used to improve the quality of multi participant video conferencing over Internet protocol which uses a unique feedback control loop to dynamically adjust for transport discrepancies commonly found in standard IP networks. The bit-rate of compressed video is adjusted by the limitation of data transport thru the network. Decimation of compressed objects represented by spatial and temporal sub bands of information during times of long latency or limited bandwidth are used to reduce the transmit bit-rate. Wavelet transforms are used for the derivation of spatial and temporal sub-band. Linear summation of decompressed sub-bands during the Inverse wavelet transform allows a quality of image based on the number of object or frame sub-bands received per given frame time. Error signals are developed based on the expected sub-band transport and the actual received number of sub-bands. The encoder to decimate future sub-band transmission during periods of poor network transport or response uses this error signal. Likewise, the error signal can be used to increase the sub-band transmission during periods when the transport and network response meet the desired quality goals of the decoder. Multiple sub-band decimation allows each receiver to have independent image quality that is dynamically adjusted for each transport stream. The error signal is accomplished by measurement of the expected sub-bands to the received sub-bands over an average time period the encoder can adjust the transport information to dynamically increase or reduce the bit-rate based on transport medium and network response. Thus, the method of determining the decimation of sub-bands is based on the network response of previous compressed object transport information allows for dynamic quality of service adjustment for multiple transport streams from a single encoder.